



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of

Applicant : Joseph M. Brand  
Serial No. : 09/335,618  
Filed : June 18, 1999  
Title : ENCAPSULANT LOCK FEATURE  
Docket No. : MIO 0051 PA  
Examiner : Alonzo Chambliss  
Art Unit : 2814

Assistant Commissioner for Patents  
Washington, D.C. 20231  
**BOX CPA**

Sir:

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PRELIMINARY AMENDMENT  
FILED WITH CONTINUATION APPLICATION UNDER 37 CFR 1.53 (d)

Please preliminarily amend the above-identified application as follows.

IN THE CLAIMS

Please add new claims 32-34 as the following:

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32. A packaged semiconductor device comprising:  
a laminate defining first and second major faces and including a plurality of laminated layers, said laminate including at least one void formed therein so as to extend from one of said major faces through a plurality of said laminated layers;  
a semiconductor chip positioned adjacent one of said major faces of said laminate; and  
an encapsulant positioned to mechanically couple said semiconductor die to said first major face of said laminate, wherein said encapsulant is further positioned to extend into said void across said plurality of laminated layers so as to contact a portion of said laminate between said first and second major faces of said laminate.

33. An encapsulated integrated circuit comprising:  
a printed circuit board comprises a laminate defining first and second major faces, said

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laminate including

a solder resist layer,

an underlying substrate,

an electrically conductive layer interposed between said solder resist layer and said underlying substrate, and

at least one void formed in said printed circuit board so as to extend from one of said major faces through said solder resist layer and said electrically conductive layer at least as far as said underlying substrate;

a semiconductor die positioned adjacent one of said major faces of said printed circuit board and being electrically conductive with said printed circuit board; and

an encapsulant positioned to mechanically couple said semiconductor die to said printed circuit board, wherein said encapsulant is further positioned to extend into said void.

34. An encapsulated integrated circuit comprising:

a printed circuit board comprises a laminate defining first and second major faces, said laminate including a solder resist layer, a resin laminate having at least one selected layer and at least one adjacent laminated layer, and an electrically conductive layer interposed between said solder resist layer and said resin laminate, said laminate includes at least one void formed therein so as to extend from one of said major faces through said solder resist layer and said electrically conductive layer at least as far as said adjacent laminated layer;

a semiconductor die positioned adjacent one of said major faces of said printed circuit board and being electrically conductive with said printed circuit board; and

an encapsulant positioned to substantially cover and mechanically couple said semiconductor die to said printed circuit board, wherein said encapsulant is further positioned to extend into said void so as to form an adhesive bond with at least said resin laminate.


REMARKS

Claims 1, 4-13, and 23 are currently in the application. Claims 2-3, 14-22, and 24-31 have been canceled. Claims 32-34 are added to protect embodiments not previously recited and thus are added to clarify the invention, which is unrelated to patentability. No new matter has been entered. Therefore, claims 1, 4-13, 23, and 32-34 are currently pending.

In the Advisory Action mailed October 22, 2001, the Examiner indicated that the proposed amendments contained in the written reply filed October 15, 2001 would not be entered because they raise new issues that would require further consideration and/or search. Accordingly, entry and consideration of those proposed amendments filed October 15, 2001 and those provided in this preliminary amendment is respectfully requested.

Applicant submits that the claims are now in condition for allowance. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,  
KILLWORTH, GOTTMAN, HAGAN & SCHAEFF, LLP

By   
William A. Jividen  
Registration No. 42,695

One Dayton Centre  
One South Main St., Suite 500  
Dayton, OH 45402-2023  
(937)223-2050  
Facsimile: (937)223-0724